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ប្រាក់រៀល. ស្ងួរភាព. អភិវឌ្ឍន៍.

Implementation Guideline

How to implement KHQR using Bakong as a payment switch

A single QR Code for receiving payment from any mobile banking apps

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Mode

Merchant - Presented

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of Content

What
is KHQR?

The standardization of KHQR code specification will help promote wider use of mobile retail payments in cambodia and provide consistent user experience for merchants and consumers. It can enable interoperability in the payment industry. A common
QR code would facilitate payments among different schemes, e-wallets and banks and would encourage small merchants to adopt KHQR code as payment method.

KHQR is created for Retail Payment in Cambodia and cross-border payment within ASEAN countries. It only requires a single QR for receiving payment from any mobile apps including Bakong App, making QR payment simple for both customers and merchants in Cambodia.n For more detail spec please refer to Prokas KHQR Code Specification in Cambodia. This document will guide you through on how to implement KHQR by using Bakong Payment Network as Payment Switch.
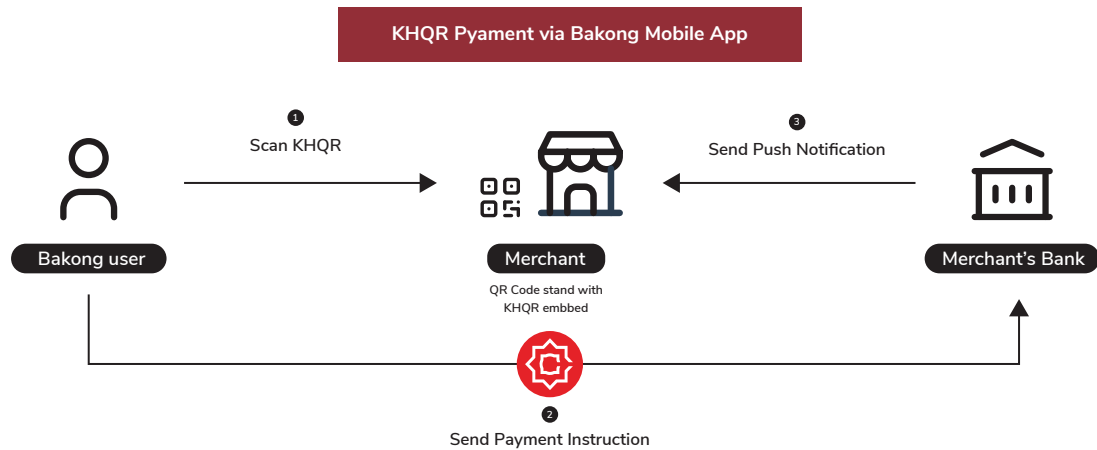
Benefits
of KHQR

For customers

- No more confusion with multiple QR codes stand when making payment. Simply look out for the KHQR label.
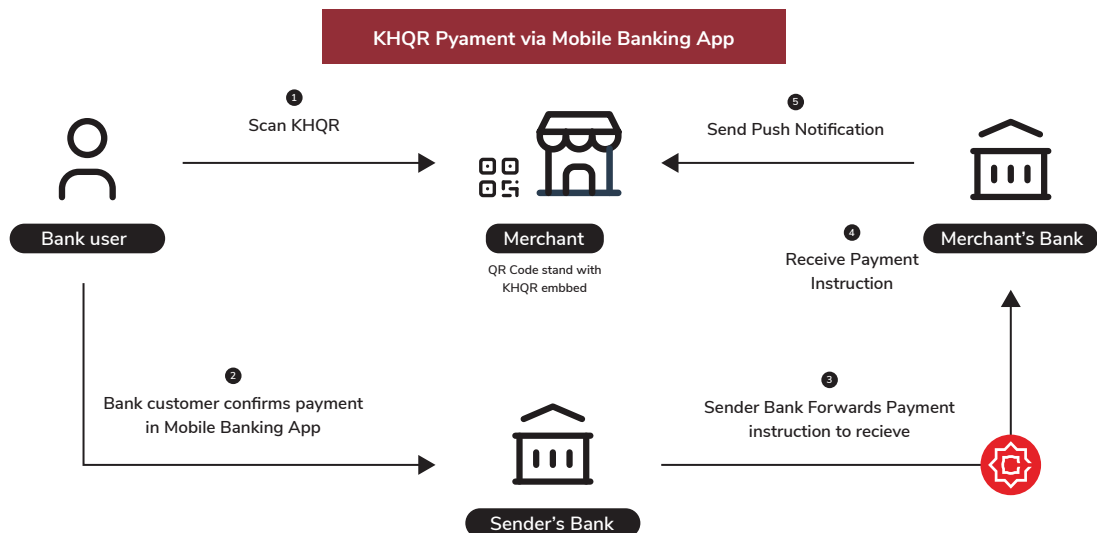- Using your own favourite app including Bakong App to make payment anywhere that has a KHQR label.

For merchants

- Saving Space for your counter. Only need to display a single KHQR stand instead of multiple QR labels.
- Simple, fast, and secure payment solution.
- Can accept payment from anyone and any bank app. No need to sign bilateral contracts with many acquirers anymore.

How
it works

① Scan KHQR

③ Send Push Notification

Bakong user

Merchant

QR Code stand with KHQR embbed

Merchant's Bank

② Send Payment Instruction

1 **User scan KHQR via Bankong App**
Bakong app reads the information of KHQR

2 **User Confirms Payment**
Credit amount transfer to merchant's bank KHQR settlement account based QR information in step 1 and attach it as a payment instruction to merchant bank

3 **Process Payment**
1. Recieve payment instruction
2. Notify merchant of recieved payment then the bank may credit to their merchant account immediately or the next day by:
   - Debit bank suspend account
   - Credit merchant account

KHQR Pyament via Mobile Banking App

① Scan KHQR

⑤ Send Push Notification

Bank user

Merchant

QR Code stand with KHQR embbed

④ Receive Payment Instruction

Merchant's Bank

② Bank customer confirms payment in Mobile Banking App

③ Sender Bank Forwards Payment instruction to recieve

Sender's Bank

1 **Bank Customer Scans KHQR**
Mobile banking app reads QR Code information

2 **Bank Customer Confirms Payment in Mobile Banking App**
Attach payment instruction based on QR Code information read

3 **Sender Bank Forwards Payment Instruction**
- Debit sender bank KHQR settlement account
- Credit receiving bank KHQR settlement account

4 **Receive Payment Instruction**
- Receive payment instruction from sender bank
- Send payment instruction to the receiving bank

5 **Process Payment Instruction, Notify**
- Debit bank suspend account
- Credit merchant account

How
to implement

Abbreviation	Full Form
CRC	Cyclic Redundancy Check
MCC	Merchant Category Codes

Prerequisite

Must become a KHQR endorser

- KHQR endorser must have KHQR settlement account which is a Bakong Wallet Account where you can either register with NBC or become a member of Bakong.
- Update QR label by follow Brokas specification of KHQR as prepared and accepted by ABC as in Prakas in this document: KHQR for Payment in Cambodia
- Accept T&C to use Bakong as a payment switch for KHQR especially fee sharing which is stated in Bakong Rule & Procedure (BRP).
- Developers shall check and test if the acquirer system can generate QR Code compliant with KHQR Specification, or parse KHQR Code from Bakong App.

How to generate KHQR Label

KHQR Tag 29

This QR code can be generated via Bakong Mobile/Desktop app with Receive Function or by using Bakong page: www.bakong.nbc.org.kh . FIs can also use the API as presented detail in this link: KHQR API specification

Static KHQR Example

QR Code with tag 29 as a solo merchant with static KHQR

"00020101021129170013merchant@nbcq
5204599953038405802KH5917
Lucky Supermarket6010Phnom Penh6304FBE4"

QR Code Convention

Data Object	Input Characters	Meaning
Payload format indicator	"000201"	Version 1
Point of Initiation Method	"010211"	Unique QR Code is shown for each consumer or Static QR Code
CRC	"6304FBE4"	Checksum

Merchant Account Information

Data Object	Input Characters	Meaning
Gobally Unique Indentifier	"2917"	Version 1
Gobally Unique Indentifier	"0013merchant@nbcq"	Global Unique Identifier = merchant@nbcq (this must be a FIs KHQR settlement account)

Additional Merchant Account Information

Data Object	Input Characters	Meaning
MCC	"52045999"	Miscellaneous and speciality retail outlets
Country Code	"5802KH"	Cambodia
Merchant Name	"5917Lucky Supermarket"	Lucky Supermarket
Merchant City	"6010Phnom Penh"	Phnom Penh

Transaction Value

Data Object	Input Characters	Meaning
Transaction Amount		0 or Prompt for input
Transaction Currency	"5303840"	USD

** *Understanding the code*

"5303840" divided into 3 parts "53", "03", "840" whereas
- First part (53) is the ID
- Second part (03) is the length of data of the third part (840 has 3 digits)
- Third part (840) is the data. 116 for KHR and 840 for USD.

Dynamic KHQR Example

QR Code with tag 29 as a solo merchant with dynamic KHQR

"00020101021229170013merchant@nbcq
5204599953031165802KH5405255005917
Lucy Supermarket6010Phnom Penh630461F1"

Lorem ipsum

■ QR Code Convention

Data Object	Input Characters	Meaning
Payload format indicator	"000201"	Version 1
Point of Initiation Method	"010211"	Unique QR Code is shown for each consumer or Static QR Code
CRC	"630461F1"	Checksum

■ Merchant Account Information

Data Object	Input Characters	Meaning
Gobally Unique Indentifier	"2917"	Version 1
Gobally Unique Indentifier	"0013merchant@nbcq"	Global Unique Identifier = merchant@nbcq (this must be a FIs KHQR settlement account)

■ Additional Merchant Account Information

Data Object	Input Characters	Meaning
MCC	"52045999"	Miscellaneous and speciality retail outlets
Country Code	"5802KH"	Cambodia
Merchant Name	"5917Lucy Supermarket"	Lucy Supermarket
Merchant City	"6010Phnom Penh"	Phnom Penh

** Note for checksum

In order to get the checksum value or CRC, get the value of the code except last 4 digits computed with CRC algorithm to get the 4 digits value.

Data Object	Input Characters	Meaning
Transaction Amount		0 or Prompt for input
Transaction Currency	"5303840"	USD

KHQR Tag 30

First, there is a must follow the KHQR specification. After owning the Bakong Wallet for example: "merchant@bank" (KHQR settlement account), the content of the QR Code shall be generate similar to this:

Dynamic KHQR Example

QR Code with tag 30 as a solo merchant with dynamic KHQR

00020101021130170013merchant@nbcq 5204599953038405802KH5917Lucky Supermarket 6010Phnom Penh6304FBE4

QR Code Convention

Data Object	Input Characters	Meaning
Payload format indicator	"000201"	Version 1
Point of Initiation Method	"010212"	Dynamic QR Code
CRC	"6304FBE4"	Checksum

Merchant Account Information

Data Object	Input Characters	Meaning
Gobally Unique Indentifier	"2917"	
Gobally Unique Indentifier	"0013merchant@nbcq"	Global Unique Identifier = merchant@nbcq (this must be a FIs KHQR settlement account)

■ Additional Merchant Account Information

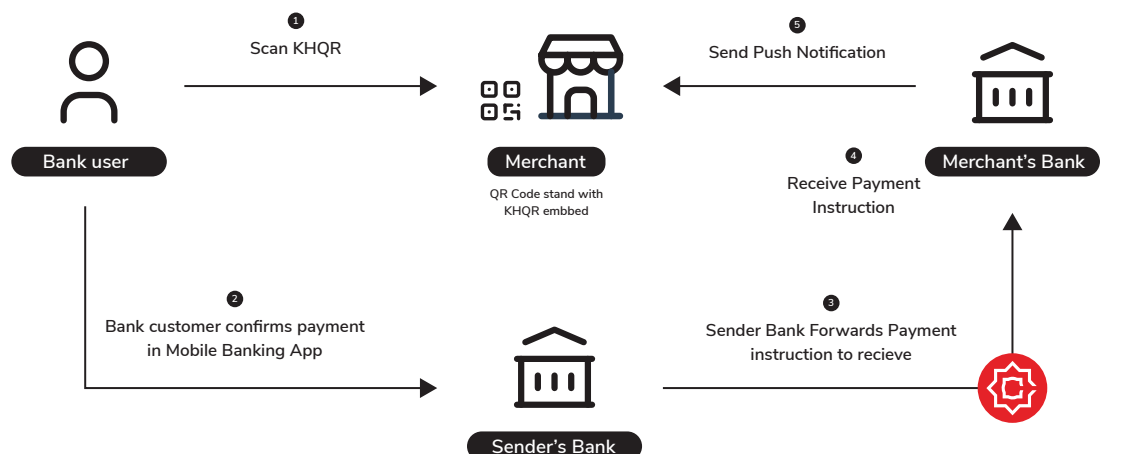| Data Object	Input Characters	Meaning
MCC	"52045999"	Miscellaneous and speciality retail outlets
Country Code	"5802KH"	Cambodia
Merchant Name	"5917Lucky Supermarket"	Lucky Supermarket
Merchant City	"6010Phnom Penh"	Phnom Penh

■ Transaction Value

Data Object	Input Characters	Meaning
Transaction Amount		0 or Prompt for input
Transaction Currency	"5303840"	USD

■ Additional Data Field Template

Data Object	Input Characters	Meaning
Additional Field Template	"6233"	0 or Prompt for input
Store Label	"03041234"	1234
Terminal Label	"0708A6008667"	A6008667

What to do with FI's Mobile App?

1. **Bank Customer Scans KHQR**
   Mobile banking app reads QR Code information

2. **Bank Customer Confirms Payment in Mobile Banking App**
   Attach payment instruction based on QR Code information read

3. **Sender Bank Forwards Payment Instruction**
   - Debit sender bank KHQR settlement account
   - Credit receiving bank KHQR settlement account

4. **Receive Payment Instruction**
   - Receive payment instruction from sender bank
   - Send payment instruction to the receiving bank

5. **Process Payment Instruction, Notify**
   - Debit bank suspend account
   - Credit merchant account

KHQR Embbed Data (Tag)

Tag ID	Sub tag ID	Name	Example
30	00	Unique ID of payment	merchant@banka
	01	Merchant ID	0000010100
	02	Acquiring Bank Merchant	banka
52		MCC	999
53		CCY code	116
58		Country Code	KH
59		Merchant Name	Sosoro
60		Merchant City	Phnom Penh
62		Additional Field Template	
	01	Bill Number	0978773121
	02	Mobile Number	093524545
	03	Terminal Label	T000001

This could be an account/ wallet of a merchant.

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Frequently
asked questions (FAQs)

1. **If my bank wants to know more or inquire about KHQR, who should I talk to?**

   KHQR team of Association of Bank in Cambodia

2. **If my bank wants to know more or inquire about How To Implement KHQR By Using Bakong As a Payment Switch, who should I talk to?**

   Bakong team of National Bank of Cambodia

KHQR,
End of Document